What is Claimed is:

1. A system for visualizing conductivity and current density distributions comprising:

a plurality of current injecting devices for injecting currents into a measuring object;

a measuring unit for measuring a magnetic flux density due to the currents injected into a measuring object;

an operating unit for selecting one pair of the current injecting devices in succession so as to inject currents of different directions into the measuring object, and calculating directional components of an anisotropic conductivity inside of the measuring object on the basis of the measured magnetic flux density; and

displaying means for visualizing an inside of the measuring object by using the calculated directional components of the anisotropic conductivity.

2. The system as claimed in claim 1, wherein the selected pair of the current injecting devices apply the current to the measuring object, and one or more non-selected pairs of the current injecting devices measure a surface voltage of the measuring object.

3. The system as claimed in claim 1, wherein the operating unit calculates an inside voltage and a surface voltage of the measuring object on the basis of an arbitrary conductivity, and calculates the directional components of the anisotropic conductivity on the basis of the calculated inside voltage and the measured magnetic flux density.

4. The system as claimed in claim 3, wherein the operating unit multiplies or divides the calculated directional components of the anisotropic conductivity by a ratio of the calculated surface voltage to a surface voltage measured by the current injecting devices.

5. The system as claimed in claim 3, wherein, if an absolute value of a difference between the arbitrary conductivity and the calculated anisotropic conductivity is greater than a preset value, the operating unit calculates new directional components of the anisotropic conductivity on the basis of a calculated inside voltage depending on the calculated directional components.

6. The system as claimed in claim 3, wherein the operating unit determines that the calculated anisotropic conductivity is a true conductivity, if an absolute value of the difference between the arbitrary conductivity and the calculated anisotropic conductivity is smaller than a present value.

7. The system as claimed in claim 3, wherein the operating unit calculates the current density distributions inside of the measuring object on the basis of the calculated inside voltage and the measured magnetic flux density, and calculates a z-directional component on the basis of the calculated inside voltage and the calculated current density distributions.

8. The system as claimed in claim 1, wherein the operating unit divides the measured magnetic flux density into a first part not including noises and a second part including the noises, removes the noises from the second part, and combines the first

part and the second part.

9. The system as claimed in claim 1, wherein the measuring unit measures the magnetic flux density corresponding to one direction parallel to a main magnetic field thereof.

10. A method for visualizing conductivity and current density distributions, comprising:

(a) injecting currents of different directions into a measuring object through current injecting devices attached to a surface of the measuring object;

(b) measuring a magnetic flux density due to the injected currents;

(c) calculating directional components of an anisotropic conductivity inside of the measuring object on the basis of the measured magnetic flux density; and

(d) visualizing an inside of the measuring object by using the calculated directional components of the anisotropic conductivity.

11. The method as claimed in claim 10, wherein the injecting currents of different directions into the measuring object comprises:

selecting a pair of the current injecting devices in succession, and

injecting the currents into the measuring object in succession through the selected pair of the current injecting devices.

12. The method as claimed in claim 11, further comprises measuring a surface voltage of the measuring object through non-selected current injecting devices.

13. The method as claimed in claim 10, wherein the measuring the magnetic flux density comprises measuring the magnetic flux density corresponding to one direction parallel to a main magnetic field.

14. The method as claimed in claim 10, wherein the calculating the directional components of the anisotropic conductivity comprises:

calculating an inside voltage and a surface voltage of the measuring object on the basis of an arbitrary conductivity, and

calculating the directional components of the anisotropic conductivity on the basis of the calculated inside voltage and the measured magnetic flux density.

15. The method as claimed in claim 14, further comprises multiplying or dividing the calculated directional components of the anisotropic conductivity by a ratio of the calculated surface voltage and a measured surface voltage of the measuring object.

16. The method as claimed in claim 14, further comprises calculating an absolute value of a difference of the arbitrary conductivity and the calculated anisotropic conductivity, and comparing the absolute value of the difference to a preset value.

17. The method as claimed in claim 16, further comprises calculating new directional components of the anisotropic conductivity on the basis of a calculated inside voltage depending on the calculated directional components if the absolute value of the difference of the arbitrary conductivity and the measured anisotropic

conductivity is greater than the preset value.

18. The method as claimed in claim 16, further comprises determining that the calculated anisotropic conductivity is a true conductivity, if the absolute value of the difference of the arbitrary conductivity and the calculated anisotropic conductivity is smaller than the present value.

19. The method as claimed in claim 14, the calculating directional components of the anisotropic conductivity comprises:

calculating five directional components of the anisotropic conductivity on the basis of the calculated inside voltage and the measured magnetic flux density;

calculating the current density distributions inside of the measuring object on the basis of the calculated inside voltage and the measured magnetic flux density; and

calculating one directional component of the anisotropic conductivity on the basis of the calculated inside voltage and the calculated current density distributions.

20. The method as claimed in claim 10, further comprising:

dividing the measured magnetic flux density into a first part not including noises and a second part including the noises;

removing the noises from the second part; and

combining the first part and the second part.

21. The method as claimed in claim 20, wherein the dividing the measured magnetic flux density into the first and second parts comprises:

calculating the first part not including the noises by substituting the measured

magnetic flux density to a preset algorithm; and

calculating a difference of the measured magnetic flux density and the calculated first part.

22. The method as claimed in claim 20, wherein the removing the noises from the second part comprises removing the noises from the second part on the basis of an intensity variation of an MRI magnitude image.

23. The method as claimed in claim 10, wherein the removing the noises from the second part comprises removing the noises from the second part on the basis of a spatial gradient of an image corresponding to the second part.

24. The method as claimed in claim 10, further comprises calculating a magnetic flux density of a portion in which the magnetic flux density is not measured, on the basis of the magnetic flux density measured at a border of the portion.

25. A system for visualizing conductivity and current density distributions comprising:

a plurality of current injecting devices for injecting currents into a measuring object;

a measuring unit for measuring a magnetic flux density due to the currents injected into a measuring object; and

an operating unit for dividing the measured magnetic flux density into a first part not including noises and a second part including the noises, and combining the first part and the second part after removing the noises from the second part.

26. The system as claimed in claim 25, wherein the operating unit removes the noises from the second part on the basis of an intensity variation of an MRI magnitude image.

27. The system as claimed in claim 25, wherein the operating unit removes the noises from the second part on the basis of a spatial gradient of an image corresponding to the second part.

28. The system as claimed in claim 25, wherein the operating unit calculates a magnetic flux density of a portion in which the magnetic flux density is not measured, on the basis of the magnetic flux density measured at a border of the portion.

29. A method for visualizing conductivity and current density distributions, comprising:

(a) injecting currents into a measuring object through current injecting devices attached to a surface of the measuring object;

(b) measuring a magnetic flux density of due to the injected currents;

(c) dividing the measured magnetic flux density into a first part not including noises and a second part including the noises;

(d) removing the noises from the second part; and

(e) combining the first part and the second part.

30. The method as claimed in claim 29, wherein the dividing the measured magnetic flux density into the first part and the second part comprises:

calculating the first part by applying the measured magnetic flux density to a preset algorithm; and

calculating a difference between the measured magnetic flux density and the calculated first part.

31. The method as claimed in claim 29, wherein the removing the noises from the second part comprises removing the noises from the second part on the basis of an intensity variation of an MRI magnitude image.

32. The method as claimed in claim 29, wherein the removing the noises from the second part comprises removing the noises from the second part on the basis of a spatial gradient of an image corresponding to the second part.

33. The method as claimed in claim 29, further comprises calculating a magnetic flux density of a portion in which the magnetic flux density is not measured, on the basis of the magnetic flux density measured at a border of the portion.